Appendix B: Data Necessary for Evaluating Parabolic-Trough Solar Water-Heating Systems

(Based, with a few additions and deletions, on checklists 1-2, 1-3, and 1-5 of ASHRAE's *Active Solar Heating Systems Design Manual*. Copyright 1988 by the American Society of Heating, Refrigeration, and Air-Conditioning Engineers, Inc., Atlanta, Georgia. Reprinted by permission)

A. Building hot-water requirements

1. Daily Load _____ gal/day (L/day) maximum,

   _____ gal/day (L/day) minimum

   How determined? _____

2. Daily use pattern _____

3. Hot-water delivery temperature _____%F (%C)

4. Load profile (list monthly hot-water load estimates, gallons [litres]):

   Jan _____ Feb _____ Mar _____ Apr _____ May _____ Jun _____

   Jul _____ Aug _____ Sep ___ ___ Oct _____ Nov _____ Dec _____

5. Total annual load _____

B. Main heating system

1. Energy source: Gas _____ Electric _____ Oil _____ Steam _____

   Cost _____

2. Hot-water heater/storage capacity _____ gallon

   Hot-water heater efficiency _____

3. Hot-water circulation: Yes _____ No _____

4. Cold-water temperature _____%F (%C) maximum _____%F (%C) minimum

C. Building information

   Date of construction _____

   Building name _____

   Location (including Zip code) _____

1. Primary building use: _____

2. Number of floors: _____ Total floor area _____ ft^2 (m^2)

3. Utilities available:

   Natural gas _____ Propane gas _____ Fuel oil _____

   Electric: _____ volt, _____ phase, _____ kW

4. Water quality: pH _____ Dissolved solids _____ ppm

D. Collector and storage locations

1. Area available for collectors _____ ft (m) (N/S) x _____ ft (m) (E/W)

   Potential shading problems _____

   Provide sketch showing shape and overall dimensions of potential collector locations and orientations with location and type of any obstructions of potential shading sources.

2. Potential storage location: Indoor _____ Outdoor _____

   If indoor, available area _____ ft (m) x _____ ft (m);

   Ceiling height _____ ft (m)

   Access to storage location: _____ door sizes _____ other

3. Potential mechanical equipment location: Indoor _____ Outdoor _____

   If indoor, available area _____ ft (m) x _____ ft (m)

4. Approximate distance collector to heat exchanger or storage _____ ft (m) elev, _____ ft (m) horizontal

5. Approximate distance heat exchanger to storage _____ ft (m) elevation _____ ft (m) horizontal